



My

CKD BOOKLET.

EDUCATIONAL BROCHURE FOR
CHRONIC KIDNEY DISEASE (CKD)
PATIENTS.



SUPPORTING YOU THROUGH YOUR LIFE WITH CKD.

YOUR JOURNEY BEGINS HERE

Dear patient,

A chronic kidney disease (CKD) diagnosis can be overwhelming, but you don't have to go through it alone, there is support for you available.

First and foremost your physician who has diagnosed your chronic kidney disease (CKD) and recommended your treatment. Your physician might also refer you to a dietician who can help you with adapting to some dietary changes that are likely to be part of your therapy. Your network of strong supporters, like your partner, your family and your friends who will be there for you when you need them.

Also we from Fresenius Kabi will try to support you with information and explanation about your disease and some tips how to adapt best to your therapy.

You can start with reading this little CKD booklet that helps you to:

- better understand CKD and what happens in your body
- manage the first steps of your therapy
- achieve your therapy goals
- have an active role in handling the progression of your CKD.

Your partners from
Fresenius Kabi

SUPPORTING YOU THROUGH YOUR LIFE WITH CKD.

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WHAT IS HAPPENING IN MY BODY?

First of all: You are not alone! Chronic kidney disease (CKD) is a common disease around the world. It is estimated that 8 to 16% of people worldwide suffer from CKD! Let's take the time to understand what is happening in your kidneys.



The role of my kidneys

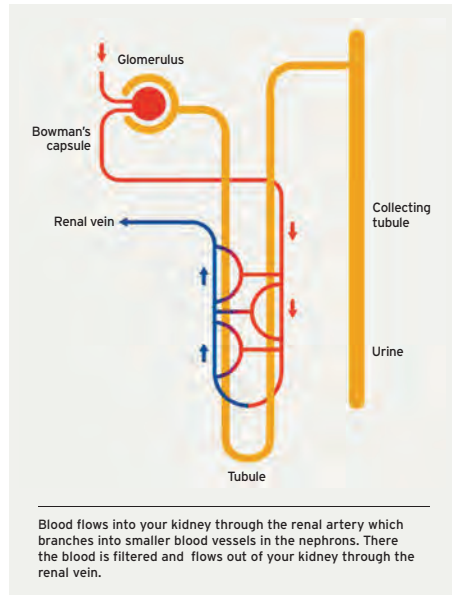
Your kidneys play an important role in your body. Their tasks include maintaining the fluid balance and producing hormones. Another major function is detoxifying your body by filtering waste products (e.g. protein metabolites such as urea, creatinine) from the blood, and excreting these waste products through the urine.

How my kidneys work

Each kidney contains approximately one million similar functional units called nephrons. Each nephron is surrounded by capillaries that act as blood filters (see Figure 1).

Substances such as water, salts, sugar, and wastes are pressed out of the blood vessels. This mixture is called primary urine. While primary urine passes through the nephrons' tubule, most of the components are reabsorbed and only about 1 to 2 liters of urine are actually excreted.

FIGURE 1:
SCHEMATIC PICTURE OF A NEPHRON
ADAPTED FROM



What happens when my kidneys don't work properly?

Kidneys are very effective organs, that's why small declines in renal function do not necessarily cause a problem. Only if a patient is losing more and more kidney function over time and it declines to 20 % or less, serious health problems can occur.

→ In this case, kidneys cannot excrete waste products sufficiently, therefore they remain in your body and can reach concentrations that may have a negative effect on your health by damaging other organs.

But you can try to slow that process, as the next chapters will show.

How to measure kidney function? And what is the GFR?

The kidney function is commonly measured as the glomerular filtration rate (GFR). It describes how many milliliters of blood your kidneys can filter within one minute. The lower the GFR value, the more your kidney function might be impaired - the normal value is 90 ml/min or higher (see figure 2). If your GFR is too low, your kidneys may not be able to remove enough wastes and extra water from your blood. The eGFR can be estimated from a measurement of creatinine, a metabolite, in your blood.

For measuring your GFR, speak with your physician as a blood test is required. In case you have the data of creatinine in your blood available, you can find an online calculator here: www.chronic-kidney-disease.com. Click to the "Service" section under eGFR.

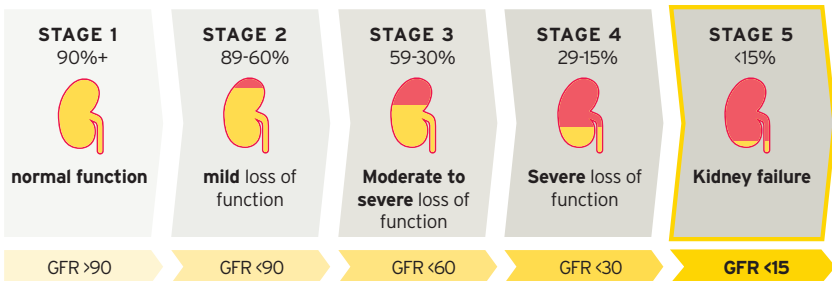
Stages of CKD and treatment options

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Depending on the severity of your disease, and your corresponding GFR, your nephrologist distinguishes five stages of CKD.

In the earlier stages, conservative therapies like dietary interventions or medications could be discussed with your nephrologist. Dialysis or kidney transplantation may be necessary at later stages.

FIGURE 2: STAGES OF CKD AND CORRESPONDING GFR VALUES.
ADAPTED FROM



My Aim: Protect my remaining kidney function for as long as possible

To reach this goal, it is necessary to understand:

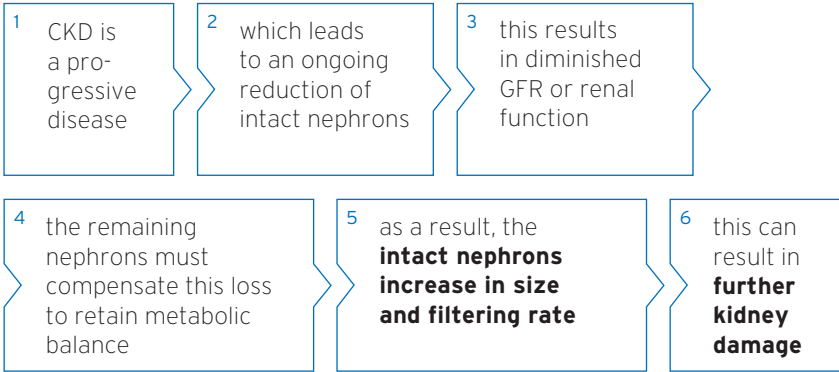
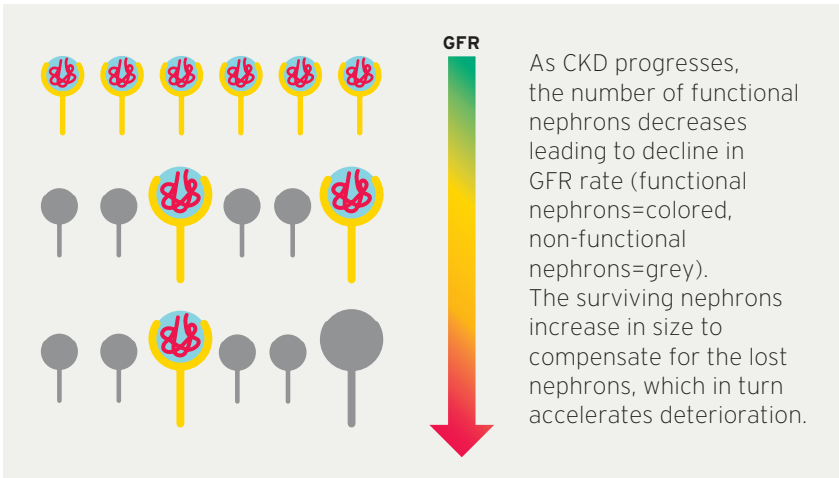


FIGURE 3: SCHEMATIC PICTURE OF HYPERFILTRATION



Therefore, it is very important to relieve your kidneys and protect your remaining kidney function by **eating less protein via a reduced protein diet.**

→ This will lower the compensation activity of the remaining nephrons - possibly helping to slow down the progression of your CKD and delay the need to begin dialysis.

Learn more about the role of the proteins in the next chapter!

WHY IS ADAPTING MY DIET IMPORTANT FOR MY THERAPY?

In today's time many adults are eating too much protein compared with the optimal daily needs. This may cause kidney problems in the first place or worsen CKD as too much protein may damage your kidneys.



What is happening with protein in my body?

First of all, proteins are important! Your body needs them for example, to build muscles, heal from injury, stop bleeding or fight infection. Normally proteins that can no longer be used are broken down into amino acids. Those amino acids are in the best case recycled to build new proteins or

further broken down and used as an energy source. During this process, a toxic molecule called ammonia consisting of nitrogen and hydrogen is formed. To get rid of this toxic product, your body converts it into urea and excretes it through your kidneys.

- But if your kidneys don't work properly, you can't get rid of the protein waste product urea!
- This may lead to uremia (see section below)!
- That's why high amounts of protein can cause damage to your kidneys and thus accelerate the progression of CKD!

What is uremia?

Because of your CKD, the excretion of urea after processing the protein from your food is decreased. Urea accumulates in your blood stream and can transform into other substances that are toxic - which may lead to a condition called uremia.

Maybe you are already experiencing symptoms that can be related to CKD like:

- feeling more tired and having less energy
- having trouble concentrating
- having a poor appetite
- having trouble sleeping
- cramping muscles at night
- swelling of feet and ankles
- having puffiness around your eyes, especially in the morning
- having dry, itchy skin
- needing to urinate more often, especially at night

Following a reduced protein diet

- **can relieve your kidneys** and therefore
- **helps to slow down the progression of your CKD.**



WHAT CAN I DO IN ORDER TO GET THE MOST OUT OF MY THERAPY?

There is a lot you can do to feel better and to delay the progression of your disease. On the next pages are tips and advice to help you in starting these adaptations.



How can I adapt my diet successfully?

The reduction of protein intake is essential to relieve your kidneys and to support the success of your CKD therapy. The best case scenario:

Meet my dietician

Your physician can connect you with a dietician who can help you to adapt to your new diet taking into consideration your personal preferences and habits.

Take a look at

My CKD Grocery Guide

It lists essential foods you need to remember when keeping a reduced protein diet and helps you to find the foods which are fitting in your diet.

Go step by step

In the beginning, you can lean on dishes you already enjoy that are low in protein. You can also swap meat with lower protein alternatives or simply reduce your portion size. Include more healthy fruits and vegetables into your diet which provide vitamins and are low in protein.

Be braver

Step it up and try new low protein dishes, head over to **www.chronic-kidney-disease.com** to find a wide list of recipe options.

Enjoy outings

When going out to a restaurant or traveling, you can enjoy yourself despite a reduced protein diet. Ask your dietician to show you what to take into consideration when choosing from a restaurant's menu card - or feel free to take the My CKD Grocery Guide to check on protein content of different foods.

> **Look at this as an opportunity to try out new things and expand your culinary creativity!**

What about my emotional balance?

Be aware that your physician is on your side, so if you would like to ask for advice - go ahead. It is beneficial to lean on your doctor's experience and knowledge during your therapy.

Besides that, here are some handy tips:

Start creating you own Personal Diary

You can track your personal small victories and if you feel better with your therapy. You can download a 4-week template for your diary as well on the website to get directly started.

Get in touch with family & friends

Maintaining close and harmonious relationships with your partner, family and friends is also very important. Let them actively take part and involve them into your new lifestyle, for example by inviting them to cook some of your new recipes together. It will make your everyday life much easier if they know about the adaptations to your diet and medication.

Take care of myself

Don't forget to take time for yourself to pause and listen to yourself, to do activities that bring you joy. Consciously compare how you felt before the therapy and what your current state is like. Talk to your loved ones about these sensations, your feelings and thoughts.

What about my physical fitness?

Physical activities can bring positive effects to CKD patients. Ask advice from your physician beforehand about what types of activity suit you if you are unsure.

What effect has physical fitness on me?

In general, exercise

- will help you to improve muscle function and strength,
- can have a favorable effect on your blood pressure,
- can lead to a better sleep and body weight.

Which activities are the best?

The most advisable are continuous activities such as

- walking,
- swimming,
- cycling,
- or dancing.

How long should I exercise?

- Begin by walking at a slow but steady pace for 10 minutes 5 days a week
- Once comfortable with the walking 10 minutes daily, then increase to 20 minutes every other day at a brisk pace.
- At 1 month, increase time to 30 minutes every other day.
- Then, after 1 more month, walk 30 minutes 5 times a week.

> For strengthening exercises, it is advisable to use low weights and high repetitions.



Please have in mind:

- No matter which form of physical activity you prefer, do not overdo it!
- Make sure you feel comfortable throughout the whole workout without ending up in too much exhaustion.
- It goes without saying that it does not always need to be high performance activity to keep you fit. It can be regular routines, such as walking the dog, or walking to the supermarket.

How to keep my motivation?

In order to maintain your new lifestyle it is very important to stay motivated.

To achieve this

- Set achievable goals and monitor your progress
- Use **My Personal Diary** to track your progress.
 - The diary will also help you to learn new tips and bring new ideas for your wellbeing.
- Keep your trusted family members and friends in the loop.
 - They could act as your crew of cheerleaders to help keep your motivation up!

How do I find like-minded people?

Family and friends provide you with irreplaceable support. You can also attend regular patient meetings and talk to like-minded people. This is a good opportunity to share experiences with people who are in the same situation as you, and to support and motivate each other.



A photograph of an older man with a mustache and a woman smiling and talking to each other outdoors. The man is wearing a light blue and white checkered shirt. The woman is wearing a purple top. They are standing in front of a wooden fence. The background is a soft-focus green landscape.

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WHERE CAN I GET ADDITIONAL INFORMATION?

You want to learn more about CKD and how to slow down the progression of your disease?

Head over to www.chronic-kidney-disease.com for more information



The website also provides, for example:

- Nutritional advice for everyday life
- A cooking guide and low protein diet recipes for CKD patients
- Answers to frequently asked questions about CKD

In addition, the website contains other useful tools:

- For estimating your glomerular filtration rate (GFR) from the value of your blood-creatinine
- A link to a food ingredient calculator with which you can keep track of e.g. the proteins a meal contains

The screenshot shows the website's header with the logo 'chronic kidney disease' and a navigation menu with links: 'CKD', 'Symptoms', 'Therapy', 'About kidneys', 'Nutrition for you', and 'Services'. Below the menu is a banner image of a doctor talking to a patient. The main heading reads 'Chronic kidney disease' with the subtext 'Learn more about the possibilities to live as best as possible with CKD.' and a 'read more' button.

A circular callout highlights a calculator tool. The tool has two tabs: 'cocroft-gault-formula' and 'CKD-EPI-formula'. The 'CKD-EPI-formula' tab is active. The form includes the following fields and options:

- 'um creatinine' input field with a unit dropdown set to 'mg/dl'.
- 'Age (> 18 years)' input field with a unit dropdown set to 'years'.
- 'Weight' input field with a unit dropdown set to 'kg'.
- 'ender' section with radio buttons for 'Male' and 'Female'.
- A blue button labeled 'Calculate your renal funtion'.
- A link labeled 'show formula'.



How

CAN I HELP
AS A FAMILY
MEMBER?

Regardless of whether you are a family member, a close friend or a caregiver: a person with chronic kidney disease needs your support.

16 Tips for family members

The diagnosis of CKD involves your loved one's entire social environment, especially you as their partner or family member may be emotionally affected by the diagnosis. It is also you who provides essential support for your friend, partner, or family member to cope with the new situation. Life may be different from now on, but it will still hold a lot of happy moments!

An important aspect in the treatment of CKD is the supplementation of keto-analogues in combination with a reduced protein diet. If you would like to read about this topic, go to **pages 10-11**. CKD patients often find it difficult to adapt to the necessary dietary changes. Thus, it is important that you provide encouragement to maintain the recommended

diet, for example, by occasionally eating a vegetarian or low-protein meal together.

Have a look at the **My CKD Grocery Guide** to see which foods your loved one can still enjoy and which ones he/ she should limit. Also a variety of delicious, protein-reduced recipes can be found here: www.chronic-kidney-disease.com/recipes

Tips for caregivers

It is very important that you support the person with CKD by being there and mastering new challenges together. Join them once in a while in their daily exercise or suggest a fun activity you can do together. Help maintain motivation through positive reinforcement, and talk openly about your emotions to be each other's support.

Together things are easier to achieve!



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